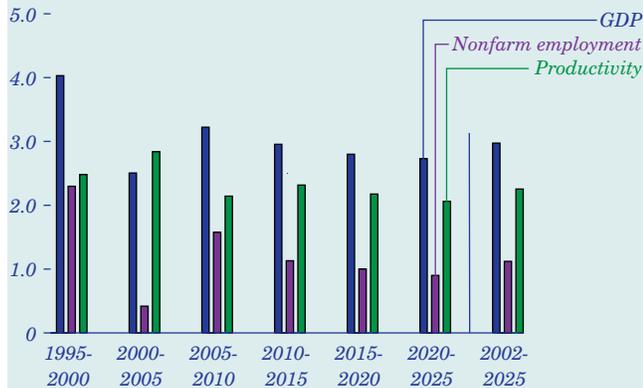


## Trends in Economic Activity

### Strong Economic Growth Is Expected To Continue

**Figure 38. Average annual growth rates of real GDP and economic factors, 1995-2025 (percent)**

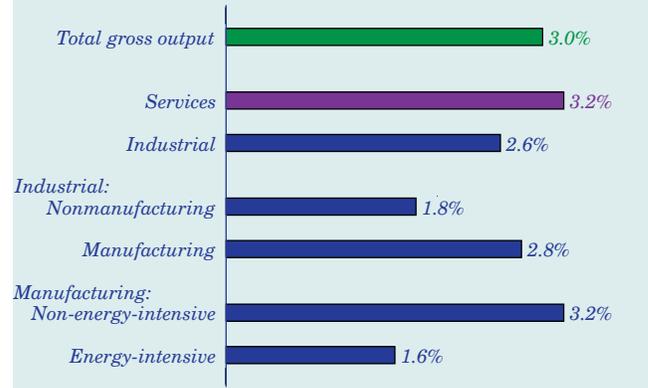


The output of the Nation's economy, measured by gross domestic product (GDP), is projected to grow by 3.0 percent per year between 2002 and 2025 (with GDP based on 1996 chain-weighted dollars) (Figure 38). The projected growth rate is slightly lower than the 3.1-percent rate projected in *AEO2003*. The labor force is projected to increase by 0.9 percent per year between 2002 and 2025, slightly lower than last year's forecast for the same period. Labor productivity growth in the nonfarm business sector is projected at 2.3 percent per year, compared with 2.2 percent per year in *AEO2003*.

Compared with the second half of the 1990s, the projected rates of growth in GDP and nonfarm employment are much lower for 2000-2005, reflecting present economic uncertainties. They are expected to pick up as the economy moves back to its long-term growth path between 2005 and 2010. Total population growth (including armed forces overseas) is expected to remain fairly constant after 2002, growing by 0.8 percent per year on average. Labor force growth is expected to slow as a result of demographic changes, but more people over 65 are expected to remain in the work force. Nonfarm business productivity growth has been strong recently, averaging 2.6 percent per year from 1995 to 2002. That trend is expected to continue through 2004, and productivity growth from 2005 to 2025 is expected to average above 2 percent per year. Disposable income is projected to grow by 3.0 percent and disposable income per capita by 2.2 percent per year. Nonfarm employment is projected to grow by 1.1 percent per year, and employment in manufacturing is projected to shrink by 0.1 percent per year.

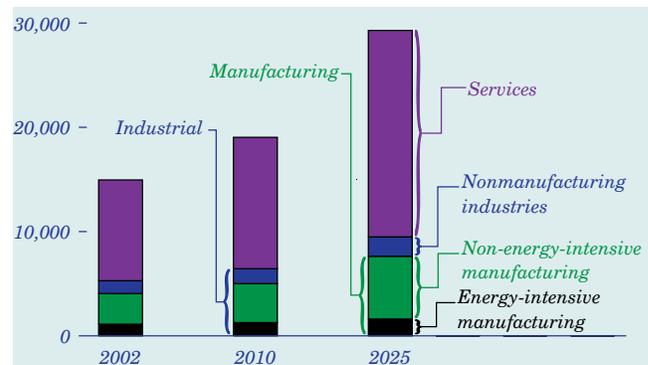
### Service Sectors Lead Output Growth, Industrial Output Growth Is Slower

**Figure 39. Sectoral composition of output growth rates, 2002-2025 (percent per year)**



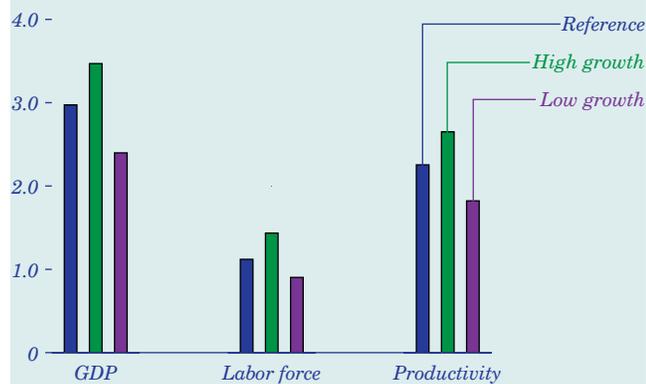
From 2002 to 2025, industrial output is projected to grow by 2.6 percent per year, compared with 3.2-percent average annual growth in the services sector (Figure 39). Manufacturing output is projected to grow by 2.8 percent per year and nonmanufacturing output (agriculture, mining, and construction) by 1.8 percent per year. The energy-intensive manufacturing sectors, which include food and intermediate goods [101], are expected to grow more slowly (1.6 percent a year) than the non-energy-intensive manufacturing sectors (3.2 percent a year). Productivity improvement is projected to be slower in the energy-intensive sectors, and higher energy prices are expected to have a greater impact, because the energy-intensive sectors are more sensitive to energy price increases. The industrial sector's share of total output is expected to fall from 35 percent in 2002 to 34 percent in 2010 and 32 percent in 2025. The manufacturing share of total output is projected to fall from 27 percent in 2002 to 26 percent in 2010 and remain at that level through 2025 (Figure 40).

**Figure 40. Sectoral composition of gross output, 2002, 2010, and 2025 (billion 1996 dollars)**



### High and Low Growth Cases Reflect Uncertainty of Economic Growth

**Figure 41. Average annual real growth rates of economic factors in three cases, 2002-2025 (percent)**



To reflect the uncertainty in forecasts of economic growth, *AEO2004* includes high and low economic growth cases in addition to the reference case (Figure 41). The high and low growth cases show the projected effects of alternative growth assumptions on energy markets. Economic variables in the alternative cases—including GDP and its components, interest rates, disposable income, productivity, population, and employment—are modified from those in the reference case.

The high economic growth case assumes higher projected growth rates for population (1.0 percent per year), nonfarm employment (1.4 percent per year), and productivity (2.7 percent per year). With higher productivity gains, inflation and interest rates are projected to be lower than in the reference case, and economic output is projected to grow by 3.5 percent per year. GDP per capita is expected to grow by 2.4 percent per year, compared with 2.1 percent in the reference case.

The low economic growth case assumes lower growth rates for population (0.6 percent per year), employment (0.9 percent per year), and productivity (1.8 percent per year), resulting in higher projections for prices and interest rates and lower projections for industrial output growth. In the low growth case, economic output is projected to increase by 2.4 percent per year from 2002 through 2025, and growth in GDP per capita is projected to average only 1.8 percent per year.

### Long-Run Trend Shows U.S. Economic Growth of About 3 Percent per Year

**Figure 42. Average annual GDP growth rate, 1970-2025 (percent, 23-year moving average)**

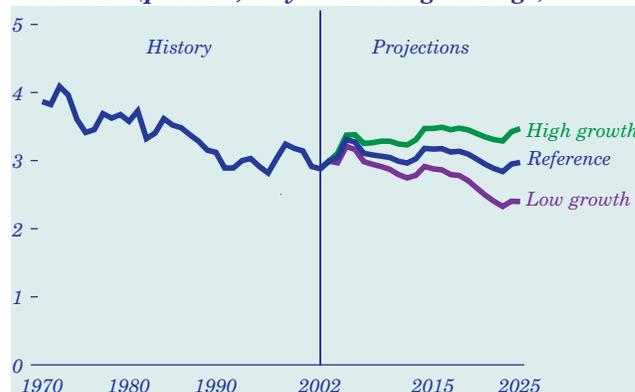


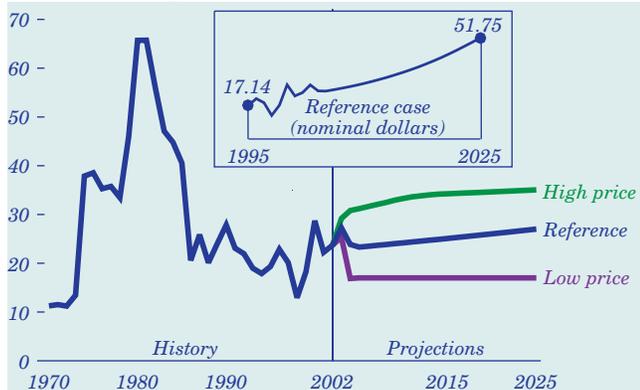
Figure 42 shows the trend in the moving 23-year average annual growth rate for GDP, including projections for the three *AEO2004* cases. The value for each year is calculated as the annual compound growth rate over the preceding 23 years. The 23-year average shows major long-term trends in GDP growth by smoothing more volatile year-to-year changes (although the increase shown for 1997-1998 reflects the negative growth of 1974-1975). Annual GDP growth has fluctuated considerably around the trend. The high and low growth cases capture the potential for different paths of long-term output growth.

One reason for the variability of the forecasts is the composition of economic output, reflected by growth rates of consumption and investment relative to overall GDP growth. In the reference case, consumption is projected to grow by 3.0 percent per year, while investment grows at a 4.8-percent annual rate. In the high growth case, with relatively lower interest rates, growth in investment is projected to average 5.5 percent per year. Higher investment rates lead to faster capital accumulation and higher productivity gains, which, coupled with higher labor force growth, yield higher aggregate economic growth than projected in the reference case. In the low growth case, with relatively higher interest rates, annual growth in investment expenditures is projected to average only 3.7 percent. Lower investment growth rates imply slower capital accumulation. With the labor force also growing more slowly, aggregate economic growth is expected to slow considerably relative to that projected in the reference case.

## International Oil Markets

### Projections Vary in Cases With Different Oil Price Assumptions

**Figure 43. World oil prices in three cases, 1970-2025 (2002 dollars per barrel)**



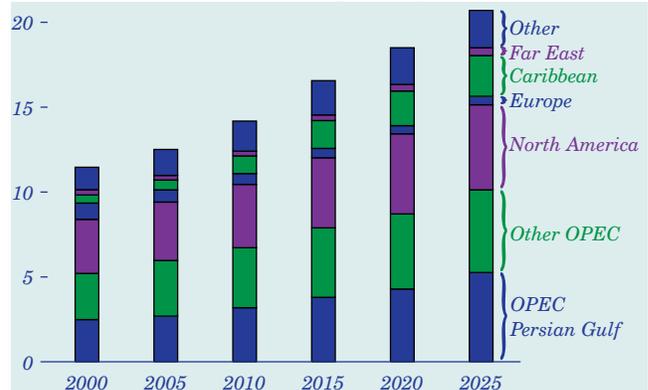
The historical record shows substantial variability in world oil prices, and there is similar uncertainty about future prices. Three *AEO2004* cases with different price paths allow an assessment of alternative views on the course of future oil prices (Figure 43). In the reference case, projected prices initially decline from current levels through 2005 and then rise by about 0.7 percent per year to \$27 in 2025 (all prices in 2002 dollars per barrel unless otherwise noted). In nominal dollars, the reference case price is about \$51 in 2025. In the low price case, prices are projected to decline from their high in 2003 to \$16.99 in 2005 and to remain at that level out to 2025. The high price case projects a price rise of about 2.9 percent per year from 2002 to 2015, with real prices beginning to level off at above \$34. The projected leveling off in the high price case is due to the market penetration of alternative energy supplies that could become economically viable at that price.

The price projections in the reference and high price cases are somewhat higher than those in *AEO2003* [102]. In view of OPEC's recent success in maintaining production cutbacks and raising world oil prices, it is expected that such market management will continue in the future. Price projections in the low case are lower than those in *AEO2003*, reflecting a greater band of uncertainty across the *AEO2004* price cases.

World demand for oil is expected to total almost 118 million barrels per day in 2025. The largest growth in demand is projected for the developing countries of Asia, at an average rate of 3.0 percent per year. Increases in production from non-OPEC countries are expected to continue throughout the forecast.

### Oil Imports Reach More Than 20 Million Barrels per Day by 2025

**Figure 44. U.S. gross petroleum imports by source, 2000-2025 (million barrels per day)**



In the reference case, total U.S. gross oil imports are projected to increase from 11.5 million barrels per day in 2002 to 20.7 million barrels per day in 2025 (Figure 44). Crude oil accounts for most of the increase in imports, because distillation capacity at U.S. refineries is expected to be about 5 million barrels per day higher in 2025 than it was in 2002. Net imports of refined petroleum products still are expected to more than double over the next two decades.

Crude oil imports from the North Sea are projected to decline gradually as North Sea production ebbs. Significant imports of petroleum from Canada and Mexico are expected to continue, with much of the Canadian contribution coming from the development of its enormous oil sands resource base. West Coast refiners are expected to import small volumes of crude oil from the Far East to replace the declining production of Alaskan crude oil.

Imports of light products are expected to more than double by 2025, to more than 3 million barrels per day. Most of the projected increase is from refiners in the Caribbean Basin, North Africa, and the Middle East, where refining capacity is expected to expand significantly. Vigorous growth in demand for lighter petroleum products in developing countries means that U.S. refiners are likely to import smaller volumes of light, low-sulfur crude oils.